

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Applicant:	§	
	§	
AVSHALOM EHRLICH	§	Confirmation No. 5469
	§	
Serial No.: 10/566,246	§	
	§	
Filed: January 30, 2006	§	Group Art Unit: 2121
	§	
For: PREDICTIVE DISPLAY FOR A	§	Attorney
SYSTEM HAVING DELAYED	§	Docket: 26/783
FEEDBACK OF A COMMAND	§	
ISSUED	§	
	§	
Examiner: Tejal Gami	§	

Mail Stop Appeal Brief-Patents  
Commissioner of Patents  
Alexandria VA 22313-1450  
ATTENTION: Board of Patent Appeals and Interferences

**APPELLANT'S BRIEF**

Dear Sir:

This is in furtherance of the Notice of Appeal filed in this case on December 21, 2009.

The fees required under § 1.17(f) and any required petition for extension of time for filing this brief and fees therefor are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains these items under the following headings and in the order set forth below:

- I. REAL PARTY IN INTEREST
- II. RELATED APPEALS AND INTERFERENCES
- III. STATUS OF CLAIMS
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- V. SUMMARY OF CLAIMED SUBJECT MATTER
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- VIII. APPENDIX OF CLAIMS INVOLVED IN THE APPEAL
- IX. APPENDIX OF EVIDENCE
- X. APPENDIX OF RELATED PROCEEDINGS

I. REAL PARTY IN INTEREST

The real party in interest in this case is:

RAFAEL ADVANCED DEFENSE SYSTEMS LTD.

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31021 Haifa

ISRAEL

II. RELATED APPEALS AND INTERFERENCES

NONE

III. STATUS OF CLAIMS

A. TOTAL NUMBER OF CLAIMS IN APPLICATION

Claims in the application are: 1-16

B. STATUS OF ALL THE CLAIMS

1. Claims cancelled: NONE
2. Claims withdrawn from consideration but not cancelled: NONE
3. Claims pending: 1-16
4. Claims allowed: NONE
5. Claims rejected: 1-16

C. CLAIMS ON APPEAL

The claims on appeal are: 1-16

#### IV. STATUS OF AMENDMENTS

No amendments to the claims have been made subsequent to the response, filed July 19, 2009, to the Office Action mailed April 30, 2009.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 is directed toward a method of providing feedback to an operator of a device (Figure 1, device 14). A device (Figure 1, device 14) that has a feedback delay is provided. A first image of a view from the device (Figure 1, image 28; Figure 6, image 48) is displayed upon at least a portion of a display (Figure 1, display 12; Figure 6, display 42) while the device is at a first position (page 6 lines 7-8; page 9 lines 9-11). A movement command is issued to cause a desired movement of the device to a second position (page 6 lines 12-16; page 9 lines 11-13). Before the operator receives real feedback of the movement command (page 6 lines 17-23 and 28-29), a second image of a view from the device (Figure 2 image 30; Figure 7 image 44) is predicted and displayed (page 6 lines 18-20). The prediction of the second image includes a processor (page 5 lines 24-25; Figure 1 processor 24) translating, rotating, magnifying and/or reducing the first image (page 7 lines 3-10 and 23-26). The second image is displayed substantially on the at least portion of the display on which the first image is displayed and replaces the first image (image 30 of Figure 2 replaces image 28 of Figure 1 in display 12; image 44 of Figure 7 replaces image 48 of Figure 6 in display 42).

Dependent claim 2 limits the second image of claim 1 to being based at least in part on the first image of claim 1 (page 6 line 30; page 9 lines 14-17).

Dependent claim 3 limits the second image of claim 2 to include a filler section (Figure 2 filler section 32; Figure 3 filler section 36) outside the at least part of the first image (page 7 lines 17-20).

Dependent claim 4 limits the filler section of claim 3 to including a pattern (Figure 3 filler section 36; page 8 lines 17-19).

Dependent claim 5 limits the pattern of claim 4 to a repetitive pattern (Figure 3 filler section 36; page 8 lines 19-20).

Dependent claim 6 limits the filler section of claim 3 to including historic image data of the predicted view (page 8 lines 20-23).

Dependent claim 10 limits the displaying of the first image to displaying the first image on a screen on which is disposed a frame (page 9 line 8; Figures 6 and 7, frame 46) with the first image disposed substantially within the frame (page 9 lines 9-11). Dependent claim 10 also limits the displaying of the second image to displaying the second image on the screen such that the second image includes substantially all image elements of the first image (page 9 lines 16-19).

Dependent claim 13 limits the filler section of claim 3 to including filler image data, at least a portion of which is manipulated in a manner substantially corresponding to the movement command (page 7 lines 23-26; page 8 lines 17-19).

Independent claim 11 is directed toward a feedback system (Figure 1 system 10) for an operator. The feedback system includes a device (Figure 1 device 14), a control arrangement (Figure 1 movement controller 16) and a display (Figures 1-5 display 12; Figures 6-8 display 42). The device includes a camera (Figure 1 camera 18). The control arrangement is configured for issuing a movement command to cause a desired movement of the device from a first position to a second position (page 5 line 27 through page 6 line 4). The display is configured for displaying, upon at least a portion of the display, a first image of a view from the device (Figure 1 image 28; Figure 6 image 48) while the device is at the first position (page 6 lines 7-8; page 9 lines 9-11). The display also is configured for, before the operator receives real feedback of the movement command (page 6 lines 17-23 and 28-29), predicting and displaying a second image of a view from the device (Figure 2 image 30; Figure 7



image **44**) at the second position (page 6 lines 18-20). The prediction of the second image includes a processor (page 5 lines 24-25; Figure 1 processor **24**) translating, rotating, magnifying and/or reducing the first image (page 7 lines 3-10 and 23-26). The second image is displayed substantially on the at least portion of the display on which the first image is displayed and replaces the first image (image **30** of Figure 2 replaces image **28** of Figure 1 in display **12**; image **44** of Figure 7 replaces image **48** of Figure 6 in display **42**).

Dependent claim 14 limits the second image of claim 11 to being based at least in part on the first image (page 6 line 30; page 9 lines 14-17) and to including a filler section(Figure 2 filler section **32**; Figure 3 filler section **36**) outside the at least part of the first image (page 7 lines 17-20). The filler section includes filler image data, at least a portion of which is manipulated in a manner substantially corresponding to the movement command (page 7 lines 23-26; page 8 lines 17-19).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-16 are anticipated by Rahim, US Patent No. 5,155,683 (henceforth, "Rahim '683"), contrary to § 102(b).

## VII. ARGUMENTS

### VIIA ARGUMENTS - REJECTIONS UNDER 35 U.S.C. 102

The Examiner has rejected claims 1-16 under § 102(b) as being anticipated by Rahim '683.

Rahim '683 teaches a method of remotely controlling the movement of a vehicle. On a display screen **14** on which is displayed an image acquired by a camera **30** on the vehicle at the vehicle's present position, an operator draws a path line **12** of a projected path of the vehicle. The operator's computer **16** maps path line **12** into a corresponding ground path, including waypoints **20** to which the vehicle should move in succession, and transmits waypoints **20** to the vehicle. The vehicle moves to waypoints **20** in succession.

In the rejection of independent claims 1 and 11 in the Office Actions mailed April 30, 2009 and October 29, 2009, and in the Response to Arguments on page 8 of the Office Action mailed April 30, 2009, the Examiner appeared to be identifying path line **12** with the "second image" recited in claim 1 step (d) sub-step (i) and in claim 11 element (c) sub-element (ii)(A). (In the rejection of claim 10, the Examiner appeared to identify the entire image on display screen **14**, including path line **12**, with the "second image". This misidentification is discussed below.) That this identification is in error can be appreciated by considering that both claim 1 and claim 11 recite "predicting a second image of a view from said device at said second position" (emphasis added). Path line **12** is not an image of a view from the vehicle of Rahim '683. Path line **12** is merely a line drawn on display screen **14** by the operator. Furthermore, path line **12** is not "predicted". Path line **12** is a mechanism by which the operator *instructs* the vehicle to move. Path line **12** is as much a "prediction" of the future movement of the vehicle as a forecast by Arnold Rothstein

that Cincinnati would win the 1919 World Series would have been a “prediction” that Cincinnati would win the Series. (Arnold Rothstein bribed selected Chicago White Sox players to lose the Series.)

In addition, the Examiner misidentified adjustment of the transform that maps path line 12 into the corresponding ground path with the modification of the first image by translation, rotation, magnification or reduction to predict the second image, as recited in claim 1 step (d) sub-step (i) and in claim 11 element (c) sub-element (ii)(A). The Examiner apparently was misled by Rahim ‘683 lines 15-18:

The transform and parameters depend on the camera orientation and lens. The transform parameters can be continuously adjusted if the camera zooms, pans or tilts.

This citation from Rahim ‘683 is a summary of what Rahim ‘683 teaches in column 11 lines 46-55:

In some cases the camera 30 should have the ability to tilt, pan and zoom in response to operator commands. It may also be necessary to move the camera 30 from place to place on the vehicle V, or extend it on a boom. If this capability exists, the parameters of the coordinate transforms from the line 12 to the ground waypoints 20 will change as the camera moves and changes its focal length. These changes must be reported to the station computer for generating the screen path and the waypoints.

In other words, path line 12 is modified to reflect changes in the image as seen by camera 30 with the vehicle *still at its first position*, not at its second position. By contrast, the translation, rotation, magnification or reduction recited in claim 1 step (d) sub-step (i) and in claim 11 element (c) sub-element (ii)(A) is for the purpose of predicting an image of a view from the device at the *second* position.

In addition, if path line 12 is (mis)identified with the “second image”, then the Examiner’s identification of the replacement of an old frame by a new frame (“few frame” on line 21 of Rahim ‘683 column 5 is an obvious typo), as taught in Rahim ‘683 column 5 lines 19-22, with the replacing of the first image by the second image,

as recited in claim 1 step (d) sub-step (ii) and in claim 11 element (c) sub-element (ii)(B), also is erroneous. Path line 12 does not replace the image on which it is drawn. The image remains on display screen 14 as a background for path line 12.

Thus, the present invention, as recited in independent claims 1 and 11, is not anticipated by Rahim'683. Furthermore, the present invention, as recited in independent claims 1 and 11, is not even obvious from Rahim '683. There is neither a hint nor a suggestion in Rahim '683 of predicting what an image of a view from the vehicle will be when the vehicle reaches a new position.

With independent claims 1 and 11 allowable in their present form it follows that claims 2-10 and 12-16 that depend therefrom also are allowable.

Although claims 3-6, 13 and 14 are allowable merely by virtue of depending from claims 1 and 11, Applicant respectfully takes the liberty of pointing out an additional reason why these claims are allowable. In rejecting these claims, the Examiner identified the grid that Rahim '683 uses to map path line 12 into the ground path with the "filler section" recited in claims 3-6, 13 and 14. That this identification is erroneous can be appreciated by considering that the grid is not visible on display screen 14. See *e.g.* Rahim '683 column 7 lines 21-23:

This grid is not a physical image seen by the operator O, but is rather a mathematical projection to explain the transform. (emphasis added)

Although claim 10 is allowable merely by virtue of depending from claim 1, Applicant respectfully takes the liberty of pointing out an additional reason why claim 10 is allowable. In rejecting claim 10, the Examiner appears to have identified the "second image" recited in this claim with the image on display screen 14 after the operator has drawn path line 12 on display screen 14. That this identification is erroneous can be appreciated by considering that after the operator has drawn path line 12 on display screen 14, the rest of the image on display screen 14 is still the

image as acquired by camera 30 with the vehicle still in its *first* position. By contrast, the “second image” recited in claim 10 is, as recited in claim 1, an image of a view from the device at the *second* position, not at the first position.

The preceding arguments were presented in response to the Office Action mailed April 30, 2009. In the Office Action mailed October 29, 2009, the Examiner argued against three points of Applicant’s response.

The first point is that path line 12 of Rahim ‘683 is not a view. To rebut this point, the Examiner cited column 4 lines 62-63 of Rahim ‘683:

The vehicle’s intended path is displayed on the operator’s viewing screen.

An intended path is not a view. An intended path is a mental construct, in the mind of the operator, of where the operator wants the vehicle to go. Before the vehicle moves, there is nothing visible in the vehicle’s environment corresponding to the intended path. As Rahim ‘683 states in column 4 lines 64-66,

The path appears as a computer-generated line superimposed on the image of the vehicle’s environment, appearing like a stripe painted on the ground.

The view from the vehicle is the “image of the vehicle’s environment” of this citation. The path must be superposed on the image of the vehicle’s environment because the path is not part of the image of the vehicle’s environment. In other words, the path is not part of the view from the vehicle.

The second point is that path line 12 of Rahim ‘683 is not predicted. The Examiner claimed to be (Office Action mailed October 29, 2009, page 8 lines 8-9)

...using the dictionary definition of predicted to mean to project something in the future.

without actually citing a dictionary definition. Applicant respectfully cites the definition of “predict” on page 899 of Webster’s New College Dictionary (G. & C. Merriam Co., 1979):

to declare in advance; *esp.*: foretell on the basis of observation, experience, or scientific reason

The operator of the vehicle of Rahim ‘683 is not foretelling the path of the vehicle on the basis of observation, experience or scientific reasoning. The operator of the vehicle of Rahim ‘683 is instructing the vehicle where to go. By contrast, in the preferred embodiment of the invention recited in independent claims 1 and 11, processor 24 really is foretelling, on the basis of images previously acquired by camera 18, what the operator of device 14 will see on display 12 after device 14 executes the movement that the operator has instructed device 14 to perform.

The third point is that path line 12 of Rahim ‘683 does not replace the image on which it is drawn. To rebut this point the Examiner cited Rahim ‘683 column 5 lines 30-35:

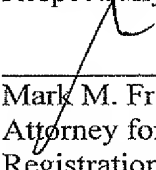
For each new screen the path line is recalculated from the reported position of the vehicle relative to the ground points. The recalculated path line is then superimposed on the screen so as again to appear to lie on the surface, and the operator can quickly perceive the new situation of the vehicle and correct the projected path.

To reiterate something that Applicant pointed out in connection with the first point, path line 12 of Rahim is not a real object in physical space. Path line 12 is a line that computer 16 draws on screen 14. The path line that Rahim ‘683 recalculates “for each new screen” (actually, for each new frame) is a brand new path line, not the (original) path line that the Examiner identified with the “second image” recited in claims 1 and 11. Hence, the Examiner’s citation from Rahim ‘683 column 5 lines 30-35 is not relevant to the third point. If anything, the Examiner’s citation from Rahim ‘683 column 5 lines 30-35 supports Applicant’s argument. In each frame that is

displayed on screen 14, including the first frame that the Examiner identified with the first image recited in claims 1 and 11, a new respective path line 12 is drawn by computer 16. That path line 12 does not replace the image in the frame. That path line 12 overlies the image in the frame.

Finally, the Examiner did not address Applicant's rebuttal of the Examiner's identification of the adjustment, in Rahim '683, of the transform that maps path line 12 into the corresponding ground path with the modification of the first image by translation, rotation, modification or reduction that is recited in claim 1 step (d) sub-step (i) and in claim 11 element (c) sub-element (ii)(A). The Examiner also did not address Applicant's defense of dependent claims 3-6, 10, 13 and 14.

Respectfully submitted,



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Date: February 4, 2010



## VIII. APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

The text of the claims on appeal is:

1. A method to provide feedback to an operator of a device, comprising the steps of:
  - (a) providing a device having a feedback delay;
  - (b) displaying upon at least a portion of a display a first image of a view from said device, said device being at a first position;
  - (c) issuing a movement command to cause a desired movement of said device to a second position; and
  - (d) prior to the operator receiving real feedback of said movement command:
    - (i) predicting a second image of a view from said device at said second position, said predicting including a processor modifying said first image according to an operation selected from the group consisting of translation, rotation, magnification and reduction, and
    - (ii) displaying said second image substantially on said at least portion of said display on which said first image is displayed, said second image replacing said first image.
2. The method of claim 1, wherein said second image is based upon at least part of said first image.

3. The method of claim 2, wherein said second image includes a filler section outside of said at least part of said first image.

4. The method of claim 3, wherein said filler section includes a pattern.

5. The method of claim 4, wherein said filler section includes a repetitive pattern.

6. The method of claim 3, wherein said filler section includes historic image data of said predicted view.

7. The method of claim 1, further comprising the step of:

(e) displaying a third image of an actual view from said device at said second position.

8. The method of claim 1, further comprising the step of:

(e) limiting said movement command to ensure that said second image can be based upon at least part of said first image.

9. The method of claim 1, wherein said step of issuing said movement command and said step of displaying said second image, occur substantially at the same time.

10. The method of claim 1, wherein said step of displaying said first image is performed by displaying said first image on a screen, said screen having a frame

disposed thereon, said first image being disposed substantially within said frame and wherein said step of displaying said second image is performed by displaying said second image on said screen such that, said second image includes substantially all image elements of said first image.

11. A feedback system for an operator, comprising:
  - (a) a device including a camera;
  - (b) a control arrangement configured for issuing a movement command to cause a desired movement of said device from a first position to a second position; and
  - (c) a display configured for:
    - (i) displaying, upon at least a portion of said display, a first image of a view from said device, said device being at a first position; and
    - (ii) prior to the operator receiving real feedback of said movement command:
      - (A) predicting a second image of a view from said device at said second position, said predicting including a processor modifying said first image according to an operation selected from the group consisting of translation, rotation, magnification and reduction, and
      - (B) displaying said second image substantially on said at least portion of said display on which said first image is displayed, said second image replacing said first image.

12. The system of claim 11, wherein said display is further configured for displaying a third image of an actual view from said device at said second position.

13. The method of claim 3, wherein said filler section includes filler image data and wherein at least a portion of said filler image data is manipulated in a manner substantially corresponding to said movement command.

14. The system of claim 11, wherein said second image is based upon at least part of said first image and wherein said second image includes a filler section outside of said at least part of said first image and wherein said filler section includes filler image data and wherein at least a portion of said filler image data is manipulated in a manner substantially corresponding to said movement command.

15. The method of claim 1, wherein said device is a vehicle operative to be remotely controlled.

16. The system of claim 11, wherein said device is a vehicle operative to be remotely controlled.

## IX. APPENDIX OF EVIDENCE

Attached is the definition of the verb “predict” on page 899 of Webster’s New College Dictionary (G. & C. Merriam Co., 1979). This definition was not submitted earlier in the prosecution of the above-identified patent application because until the Office Action mailed October 29, 2009 the Examiner did not raise the issue of the definition of the verb “predict”.

X. APPENDIX OF RELATED PROCEEDINGS

NONE

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